Acoustics, Ultrasound and Vibration, South Africa, CSIR-NML (Council for Scientific and Industrial Research - National Metrology Laboratory)

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty						
Quantity	**Instrument or Artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**Units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**NMI Service Identifier**	**Comments**
Pressure sensitivity level	Measurement microphone type LS1P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	63 Hz to 2 kHz	0.04	dB	2	95%	No	AV-1.1.1-1	Approved on 19 December 2005
Pressure sensitivity level	Measurement microphone type LS1P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	2.5 kHz to 3.15 kHz	0.05	dB	2	95%	No	AV-1.1.1-1	Approved on 19 December 2005
Pressure sensitivity level	Measurement microphone type LS1P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	4 kHz to 8 kHz	0.06	dB	2	95%	No	AV-1.1.1-1	Approved on 19 December 2005
Pressure sensitivity level	Measurement microphone type LS1P	IEC 61094-2:1992			dB (reference: 1 V/Pa)	Frequency	10 kHz	0.1	dB	2	95%	No	AV-1.1.1-1	Approved on 19 December 2005
Pressure sensitivity level	Measurement microphone type LS2P	Insert voltage			dB (reference: 1 V/Pa)	Frequency	31.5 Hz	0.1	dB	2	95%	No	AV-1.1.1-1	Approved on 19 December 2005
Pressure sensitivity level	Measurement microphone type LS2P	Insert voltage			dB (reference: 1 V/Pa)	Frequency	63 Hz	0.06	dB	2	95%	No	AV-1.1.1-1	Approved on 19 December 2005
Pressure sensitivity level	Measurement microphone type LS2P	Insert voltage			dB (reference: 1 V/Pa)	Frequency	125 Hz to 8 kHz	0.05	dB	2	95%	No	AV-1.1.1-1	Approved on 19 December 2005
Pressure sensitivity level	Measurement microphone type LS2P	Insert voltage			dB (reference: 1 V/Pa)	Frequency	12.5 kHz	0.06	dB	2	95%	No	AV-1.1.1-1	Approved on 19 December 2005
Pressure sensitivity level	Measurement microphone type LS2P	Insert voltage			dB (reference: 1 V/Pa)	Frequency	16 kHz	0.07	dB	2	95%	No	AV-1.1.1-1	Approved on 19 December 2005
Sound pressure level	Pistonphone or sound calibrator, single frequency (250 Hz to 1 kHz)	Measurement microphone	94	130	dB (reference 20 µPa)	Microphone type	LS1P	0.05	dB	2	95%	No	AV-2.1.1-1	Approved on 19 December 2005
Sound pressure level	Pistonphone or sound calibrator, single frequency (250 Hz to 1 kHz)	Measurement microphone	94	130	dB (reference 20 µPa)	Microphone type	LS2P	0.04	dB	2	95%	No	AV-2.1.1-1	Approved on 19 December 2005
Sound pressure level	Sound calibrator, multi frequency	Measurement microphone	94	130	dB (reference 20 µPa)	Frequency	125 Hz to 2 kHz	0.1	dB	2	95%	No	AV-2.2.1-1	Approved on 19 December 2005

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Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty						
Quantity	**Instrument or Artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**Units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**NMI Service Identifier**	**Comments**
						Microphone type	LS1P							
Sound pressure level	Multi frequency sound calibrator	Measurement microphone type LS2P	94	130	dB (reference 20 µPa)	Frequency	31.5 Hz	0.09	dB	2	95%	No	AV-2.2.1-1	Approved on 19 December 2005
						Microphone type	LS2P							
Sound pressure level	Multi frequency sound calibrator	Measurement microphone type LS2P	94	130	dB (reference 20 µPa)	Frequency	63 Hz	0.05	dB	2	95%	No	AV-2.2.1-1	Approved on 19 December 2005
						Microphone type	LS2P							
Sound pressure level	Multi frequency sound calibrator	Measurement microphone type LS2P	94	130	dB (reference 20 µPa)	Frequency	125 Hz to 8 kHz	0.04	dB	2	95%	No	AV-2.2.1-1	Approved on 19 December 2005
						Microphone type	LS2P							
Sound pressure level	Multi frequency sound calibrator	Measurement microphone type LS2P	94	130	dB (reference 20 µPa)	Frequency	12.5 kHz	0.05	dB	2	95%	No	AV-2.2.1-1	Approved on 19 December 2005
						Microphone type	LS2P							
Sound pressure level	Multi frequency sound calibrator	Measurement microphone type LS2P	94	130	dB (reference 20 µPa)	Frequency	16 kHz	0.06	dB	2	95%	No	AV-2.2.1-1	Approved on 19 December 2005
						Microphone type	LS2P							
Charge sensitivity (modulus)	Accelerometer	ISO 16063-11			pC/(m/s^2)	Frequency	10 Hz to 1 kHz	0.5	%	2	95%	Yes	AV-21.3.1.1-1	Approved on 19 December 2005
Charge sensitivity (modulus)	Accelerometer	ISO 16063-11			pC/(m/s^2)	Frequency	1.25 kHz to 4 kHz	1	%	2	95%	Yes	AV-21.3.1.1-1	Approved on 19 December 2005
Charge sensitivity (modulus)	Accelerometer	ISO 16063-11			pC/(m/s^2)	Frequency	5 kHz to 10 kHz	1.8	%	2	95%	Yes	AV-21.3.1.1-1	Approved on 19 December 2005

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Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty						
Quantity	**Instrument or Artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**Units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**NMI Service Identifier**	**Comments**
Charge sensitivity (phase shift)	Accelerometer	ISO 16063-11	0	360	°	Frequency	10 Hz to 1 kHz	0.4	°	2	95%	No	AV-21.3.1.2-1	Approved on 19 December 2005
Charge sensitivity (phase shift)	Accelerometer	ISO 16063-11	0	360	°	Frequency	1.25 kHz to 4 kHz	0.8	°	2	95%	No	AV-21.3.1.2-1	Approved on 19 December 2005
Charge sensitivity (phase shift)	Accelerometer	ISO 16063-11	0	360	°	Frequency	5 kHz to 10 kHz	1.4	°	2	95%	No	AV-21.3.1.2-1	Approved on 19 December 2005
Charge sensitivity (modulus)	Accelerometer	ISO 16063-21			$pC/(m/s^2)$	Frequency	3 Hz to 10 Hz	1.5	%	2	95%	Yes	AV-21.3.1.1-2	Approved on 19 December 2005
Charge sensitivity (modulus)	Accelerometer	ISO 16063-21			$pC/(m/s^2)$	Frequency	10 Hz to 1 kHz	1.0	%	2	95%	Yes	AV-21.3.1.1-2	Approved on 19 December 2005
Charge sensitivity (modulus)	Accelerometer	ISO 16063-21			$pC/(m/s^2)$	Frequency	1.25 kHz to 4 kHz	1.3	%	2	95%	Yes	AV-21.3.1.1-2	Approved on 19 December 2005
Charge sensitivity (modulus)	Accelerometer	ISO 16063-21			$pC/(m/s^2)$	Frequency	5 kHz to 10 kHz	2.0	%	2	95%	Yes	AV-21.3.1.1-2	Approved on 19 December 2005
Charge sensitivity (phase shift)	Accelerometer	ISO 16063-21	0	360	°	Frequency	10 Hz to 1 kHz	0.5	°	2	95%	No	AV-21.3.1.2-1	Approved on 19 December 2005
Charge sensitivity (phase shift)	Accelerometer	ISO 16063-21	0	360	°	Frequency	1.25 kHz to 4 kHz	1.0	°	2	95%	No	AV-21.3.1.2-1	Approved on 19 December 2005
Charge sensitivity (phase shift)	Accelerometer	ISO 16063-21	0	360	°	Frequency	5 kHz to 10 kHz	1.8	°	2	95%	No	AV-21.3.1.2-1	Approved on 19 December 2005
Voltage sensitivity (modulus)	Acceleration measuring chain	ISO 16063-21	1	1000	$mV/(m/s^2)$	Frequency range	3 Hz to 10 Hz	1.5	%	2	95%	Yes	AV-21.4.1.1-1	Approved on 19 December 2005 Calibration of velocity as well as displacement transducers is available

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Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty						
Quantity	**Instrument or Artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**Units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**NMI Service Identifier**	**Comments**
Voltage sensitivity (modulus)	Acceleration measuring chain	ISO 16063-21	1	1000	$mV/(m/s^2)$	Frequency range	10 Hz to 1 kHz	1	%	2	95%	Yes	AV-21.4.1.1-1	Approved on 19 December 2005 Calibration of velocity as well as displacement transducers is available
Voltage sensitivity (modulus)	Acceleration measuring chain	ISO 16063-21	1	1000	$mV/(m/s^2)$	Frequency range	1.25 kHz to 4 kHz	1.3	%	2	95%	Yes	AV-21.4.1.1-1	Approved on 19 December 2005 Calibration of velocity as well as displacement transducers is available
Voltage sensitivity (modulus)	Acceleration measuring chain	ISO 16063-21	1	1000	$mV/(m/s^2)$	Frequency range	5 kHz to 10 kHz	2.0	%	2	95%	Yes	AV-21.4.1.1-1	Approved on 19 December 2005 Calibration of velocity as well as displacement transducers is available
Acceleration (modulus)	Vibration measuring instrument	ISO 16063-21	0.01	100	m/s^2	Frequency range	3 Hz to 10 Hz	1.5	%	2	95%	Yes	AV-21.1.1.1-1	Approved on 19 December 2005 Calibration of velocity as well as displacement transducers is available
Acceleration (modulus)	Vibration measuring instrument	ISO 16063-21	0.01	100	m/s^2	Frequency range	10 Hz to 1 kHz	1	%	2	95%	Yes	AV-21.1.1.1-1	Approved on 19 December 2005 Calibration of velocity as well as displacement transducers is available

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Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty						
Quantity	**Instrument or Artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**Units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**NMI Service Identifier**	**Comments**
Acceleration (modulus)	Vibration measuring instrument	ISO 16063-21	0.01	500	m/s^2	Frequency range	1.25 kHz to 4 kHz	1.3	%	2	95%	Yes	AV-21.1.1.1-1	Approved on 19 December 2005 Calibration of velocity as well as displacement transducers is available
Acceleration (modulus)	Vibration measuring instrument	ISO 16063-21	0.01	500	m/s^2	Frequency range	5 kHz to 10 kHz	2.0	%	2	95%	Yes	AV-21.1.1.1-1	Approved on 19 December 2005 Calibration of velocity as well as displacement transducers is available